

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Keith A. Lowery, et al.
Serial No.: 09/592,486
Filing Date: June 8, 2000
Confirmation No.: 4296
Group Art Unit: 2143
Examiner: Alina A. Boutah
Title: METHOD AND APPARATUS FOR DYNAMIC DATA
FLOW CONTROL USING PRIORITIZATION OF
DATA REQUESTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPEAL BRIEF

Applicant has appealed to the Board of Patent Appeals and Interferences from the decision of the Examiner mailed June 6, 2006, finally rejecting Claims 1-4 and 6-44. Applicant respectfully submits herewith their brief on appeal.

REAL PARTY IN INTEREST

The present Application was assigned to epicRealm, Inc., a Delaware corporation, as indicated by an assignment from the inventors recorded on June 8, 2000 in the Assignment Records of the United States Patent and Trademark Office at Reel 010905, Frames 0130-0133. Assignee epicRealm, Inc. subsequently changed its name to epicRealm operating Inc. as indicated by a change of name document recorded on April 6, 2001 in the Assignment Records of the United States Patent and Trademark Office at Reel 011685, Frames 0637-0639.

RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

STATUS OF CLAIMS

Claims 1-4 and 6-44 stand rejected pursuant to a Final Action mailed June 24, 2005. Claim 5 has been rejected without prejudice or disclaimer. Claims 45-52 have been withdrawn. Claims 1-4 and 6-44 are all presented for appeal.

STATUS OF AMENDMENTS

A Response to Office Action Pursuant to 37 C.F.R. §1.111 was filed on January 27, 2003 in response to an Office Action mailed October 27, 2003. Claim 5 was canceled without prejudice or disclaimer, Claims 1, 25, and 30 were amended, and Claims 45-52 were withdrawn. A Response to Final Office Action Pursuant to 37 C.F.R. §1.111 was filed on May 24, 2004 in response to a Final Office Action mailed March 31, 2004. Claims 1, 6, 7, 9, 24, 25, and 30 were amended. A Response Pursuant to 37 C.F.R. §1.111 was filed on February 15, 2005 in response to an Office Action mailed November 17, 2004. Claims 6, 8, and 32-34 were amended. The Examiner issued a Final Office Action on June 6, 2005. Applicant filed a Notice of Appeal and Pre-Appeal Brief Request for Review on September 6, 2005. The Examiner issued a Notice of Panel Decision from Pre-Appeal Brief Review on July 3, 2006 stating that the appeal is to proceed to the Board of Patent Appeals and Interferences.

SUMMARY OF CLAIMED SUBJECT MATTER

With respect to Independent Claims 1 and 30, a method for data processing is provided. (See FIGURE 6 and page 59, lines 21-22). A data request is received at a data center 14. (See FIGURE 6, step 304, and page 60, lines 1-2). The data request is received from a client computer requesting data. (See FIGURE 6, step 300, and page 59, lines 22-24). A state associated with the request is then determined. (See FIGURE 6, steps 316-324, and page 61, line 16, to page 65, line 8). A priority is assigned to the request according to the state associated with the request and according to priority criteria associated with the state. (See FIGURE 6, steps 340-344, and page 65, line 9, to page 66, line 15). Priority criteria may be automatically updated. (See page 29, lines 2-6). The priority of the request can be dynamically updated in response to the adjusted priority criteria. (See page 29, lines 2-6). The request is placed in a queue as a function of its priority. (See FIGURE 6, step 346, and page 67, lines 9-12). The requested data is retrieved from an origin server 18. (See FIGURE 6, step 338, and page 65, lines 7-8).

With respect to Independent Claim 25, a system 10 for dynamic flow control is provided. (See FIGURES 1 and 3). System 10 includes a cache server 32 operable to receive a request for content from a client computer 12 and retrieve content from an origin server 18 in response thereto. (See FIGURE 3 and page 19, lines 4-27). System 10 also includes a flow control server 34 having an associated queue 100 and coupled to the cache server 32. (See FIGURES 3 and 4 and page 19, lines 8-11). Flow control server 34 performs the steps discussed above and regulates the retrieval of content from the origin server by the cache server. (See page 22, lines 6-9).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Did the Examiner err in concluding that Claims 1, 6-8, 11-13, 15-23, 30-33, 35, and 37-44 were obvious under 35 U.S.C. §103(a) in view of the combination of U. S. Patent No. 6,023,722 issued to Colyer in view of U.S. Patent No. 6,445,680 issued to Moyal?

2. Did the Examiner err in concluding that Claims 2-4, 9, 10, 25-28, 34, and 36 were obvious under 35 U.S.C. §103(a) in view of the combination of U. S. Patent No. 6,023,722 issued to Colyer in view of U.S. Patent No. 6,445,680 issued to Moyal and further in view of U. S. Patent No. 6,578,073 issued to Starnes, et al.?

3. Did the Examiner err in concluding that Claims 14 and 29 were obvious under 35 U.S.C. §103(a) in view of the combination of U. S. Patent No. 6,023,722 issued to Colyer in view of U.S. Patent No. 6,445,680 issued to Moyal and further in view of U. S. Patent No. 5,582,812 issued to Reeder?

4. Did the Examiner err in concluding that Claim 24 was obvious under 35 U.S.C. §103(a) in view of the combination of U. S. Patent No. 6,023,722 issued to Colyer in view of U.S. Patent No. 6,445,680 issued to Moyal and further in view of U.S. Patent No. 6,304,913 issued to Rune?

ARGUMENT

1. Claims 1, 6-8, 11-13, 15-23, 30-33, 35, and 37-44 stand rejected under 35 U.S.C. §103(a) as being obvious over Colyer in view of Moyal. According to M.P.E.P. §2143, to establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, there must be a reasonable expectation of success. Third, the prior art combination of references must teach or suggest all the claim limitations. The Examiner has not established that any criteria for a prima facie case of obviousness has been met in this instance.

First, there is no suggestion or motivation in the Colyer patent or the Moyal patent to combine them as proposed by the Examiner. The Examiner has failed to show that there is some teaching, suggestion, or motivation to combine the Colyer patent and the Moyal patent as proposed. The Colyer patent is directed to a server system with pull based load balancing. The Moyal patent is directed to a linked list based least recently used arbiter with a push based technique. The Examiner has not cited any language within the Colyer patent or the Moyal patent that would suggest any capability for them to be combined. The Examiner states that one of ordinary skill in the art would be motivated to provide the feature of the claimed invention, presumably taught by the Moyal patent, in the Colyer patent. The rationale provided by the Examiner for their combination is purely subjective conjecture and speculation with no objective reasoning being provided to support combining the references as has been proposed. The Examiner is merely taking bits and pieces of unrelated subject matter in an improper hindsight attempt at reconstructing the claimed invention. Since the Examiner has used the claim

language in a hindsight attempt to support the combination of the references, the burden to establish the first criteria of a *prima facie* case of obviousness has not been met.

Moreover, the proposed modification changes the principle of operation of the prior art being modified. The Colyer patent uses a queue that stores requests having a unique correlation identifier. Requests are only provided to servers that provide the unique correlation identifier according to a pull design. The Moyal patent uses a queue that includes a source index and an associated data ready indication. The source index being closest to the top of the queue having a set data ready indication is serviced first and then returned to the bottom of the queue according to a push design. Thus, if the queue of the Moyal patent was placed into the system of the Colyer patent, the pull model function of the Colyer patent would no longer work. Accordingly, the principle of operation of the Colyer patent would be improperly changed by incorporating their respective teachings. The Examiner has yet to explain how the Colyer patent and the Moyal patent can be combined in view of such different functionalities. The Examiner states that it would be obvious or clear to one of ordinary skill in the art to combine the references. However, this subjective opinion provided by the Examiner has not been supported by any objective evidence. Therefore, Applicant respectfully submits that the Examiner has failed to establish the first criteria for a *prima facie* case of obviousness.

Second, a reasonable expectation of success has not been shown by the Examiner. The combination of the Colyer patent and the Moyal patent would not be capable of performing the operation required by the claimed invention. There is no showing by the Examiner that the functions of any of the Colyer patent and the Moyal patent would be able to operate in

a single system. There has also been no showing that the combined references would even be able to perform the functionality of the claimed invention. The proposed combination attempts to combine incompatible processing techniques that have not been shown to be capable of operating according to any degree of predictability. The Colyer patent would not be able to operate with the queue of the Moyal patent. The Examiner, without the improper hindsight look through the claimed invention, has not addressed how the proposed combination of the Colyer patent and the Moyal patent would have any success whatsoever let alone a reasonable expectation of success. Therefore, Applicant respectfully submits that the Examiner has failed to establish the second criteria for a *prima facie* case of obviousness.

Third, the Examiner has not shown that the proposed Colyer - Moyal combination teaches or suggests all of the claim limitations. For example, Independent Claims 1 and 30 recite ". . . automatically adjusting the priority criteria; dynamically updating the priority of the request to send data to the client computer in response to the adjusted priority criteria; . . ." By contrast, the portion of the Colyer patent cited by the Examiner merely describes the use of a priority assigning unit that assigns priorities to client requests. The Examiner readily admits that the Colyer patent fails to teach the claim element of dynamically updating the priority of the request in response to the adjusted priority criteria. Moreover, the Colyer patent fails to disclose any capability to automatically adjust a priority criteria. The Colyer patent only describes a fixed priority scheme (a text request given a higher priority than a graphics request) with no capability to adjust its fixed priority scheme let alone automatically as provided in the claimed invention. To

overcome the deficiencies of the Colyer patent, the Examiner cites the Moyal patent in combination with the Colyer patent. However, the portion of the Moyal patent cited by the Examiner merely describes a source index queue where a source index location closest to the top of the queue with its data ready indication set is processed each cycle. There is no capability for the index queue of the Moyal patent to adjust its priority criteria as it will always service the highest order location with available data. Moreover, any priority provided by the index queue of the Moyal patent is based on location within the queue and not on the contents of the location. Thus, the Moyal patent is incapable of dynamically updating the priority of a request let alone in response to an adjusted priority criteria. Thus, the structure that would result from placing the index queue of the Moyal patent into the system of the Colyer patent would still lack an ability to automatically adjust priority criteria and dynamically update the priority of a request in response to the adjusted priority criteria as required by the claimed invention. Therefore, Applicant respectfully submits that Claims 1, 6-8, 11-13, 15-23, 30-33, 35, and 37-44 are patentably distinct from the proposed Colyer - Moyal combination.

Thus, the Examiner has failed to establish the third criteria for a *prima facie* case of obviousness. As a result of the improper combination of the references, the lack of any expectation of success for the combination, and the lack of disclosure in the patents being combined by the Examiner, there is an insufficient basis to support the rejection of the claims.

2. Claims 2-4, 9, 10, 25-28, 34, and 36 stand rejected under 35 U.S.C. §103(a) as being obvious over Colyer in view of Moyal and further in view of Starnes, et al. Independent Claim 1, from which Claims 2-4, 9, and 10 depend, and Independent Claim 30, from which Claims 34 and 36 depend, have been shown above to be patentably distinct from the proposed Colyer - Moyal combination. Moreover, the Starnes, et al. patent does not include any additional disclosure combinable with the Colyer or Moyal patents that would be material to patentability of these claims. Independent Claim 25, with Claims 26-28 depending therefrom, includes the identical features shown above to be patentably distinct from the proposed Colyer - Moyal combination. Therefore, Applicant respectfully submits that Claims 2-4, 9, 10, 25-28, 34, and 36 are patentably distinct from the proposed Colyer - Moyal - Starnes, et al. combination.

3. Claims 14 and 29 stand rejected under 35 U.S.C. §103(a) as being obvious over Colyer in view of Moyal and further in view of Reeder. Independent Claim 1, from which Claim 14 depends, and Independent Claim 25, from which Claim 29 depends, have been shown above to be patentably distinct from the proposed Colyer - Moyal combination. Moreover, the Reeder patent does not include any additional disclosure combinable with the Colyer or Moyal patents that would be material to patentability of these claims. Therefore, Applicant respectfully submits that Claims 14 and 29 are patentably distinct from the proposed Colyer - Moyal - Reeder combination.

4. Claim 24 stands rejected under 35 U.S.C. §103(a) as being obvious over Colyer in view of Moyal and further in view of Rune. Independent Claim 1, from which Claim 24 depends, has been shown above to be patentably distinct from the proposed Colyer - Moyal combination. Moreover, the Rune patent does not include any additional disclosure combinable with the Colyer or Moyal patents that would be material to patentability of these claims. Therefore, Applicant respectfully submits that Claim 24 is patentably distinct from the proposed Colyer - Moyal - Reeder combination.

CONCLUSION

Applicant has clearly demonstrated that the present invention as claimed is clearly distinguishable over all the art cited of record, either alone or in combination, and satisfies all requirements under 35 U.S.C. §§101, 102, and 103, and 112. Therefore, Applicant respectfully requests the Board of Patent Appeals and Interferences to reverse the final rejection of the Examiner and instruct the Examiner to issue a Notice of Allowance of all claims.

The Commissioner is hereby authorized to charge any fees or credit any overpayments associated with this Application to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

Respectfully submitted,

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APPENDIX A

1. (Previously Presented) A method for data processing comprising:

receiving a data request at a data center, the request received from a client computer requesting data;

determining a state associated with the request to send data to the client computer;

assigning a priority to the request according to the state associated with the request and according to priority criteria associated with the state;

automatically adjusting the priority criteria;

dynamically updating the priority of the request to send data to the client computer in response to the adjusted priority criteria;

queuing the request as a function of the priority associated with the request; and

retrieving the requested data from an origin server.

2. (Original) The method for data processing according to Claim 1, wherein the data center comprises a cache server, a flow control server and a web server.

3. (Original) The method for data processing according to Claim 1 further comprising:

determining a load associated with the origin server;

controlling at a flow control server retrieval of data from the origin server by a cache server;

granting permission from the flow control server to the cache server to retrieve data when the load associated with the origin server is below a threshold; and

denying permission from the flow control server to the cache server to retrieve data when the load associated with the origin server is above the threshold.

4. (Original) The method for data processing according to Claim 3, wherein the threshold is determined as a function of the load of the origin server.

5. (Canceled).

6. (Previously Presented) The method for data processing according to Claim 1 further comprising communicating alternate content to the client computer requesting data, the alternate content comprising a status page, the status page comprising an automatic re-submission time for re-issuing the request.

7. (Previously Presented) The method for data processing according to Claim 6, wherein the alternate content comprises the status page and wherein the status page is communicated when the load at the origin server exceeds a predetermined threshold.

8. (Previously Presented) The method for data processing according to Claim 6, wherein communicating the alternate content comprises:

associating a queue delay time with the request;

determining whether the queue delay time exceeds a threshold;

generating the alternate content as a function of predetermined criteria associated with the origin server when the queue delay time exceeds the threshold; and
returning the alternate content to the client computer.

9. (Previously Presented) The method for data processing according to Claim 8, wherein the data request is generated at the client computer remote from the data center and wherein generating the alternate content comprises selecting the alternate content as a function of the bandwidth available to the client computer.

10. (Original) The method for data processing according to Claim 9, wherein generating the alternate content further comprises determining the amount of bandwidth available to the client computer, wherein the amount of bandwidth comprises one of high-bandwidth, medium-bandwidth and low-bandwidth.

11. (Original) The method for data processing according to Claim 8, wherein generating the alternate content further comprises generating the alternate content based on the queue delay time and the predetermined criteria.

12. (Original) The method for data processing according to Claim 8, wherein the predetermined criteria comprises information associated with the request.

13. (Original) The method for data processing according to Claim 8, wherein the predetermined criteria comprises external information associated with a user associated with the request.

14. (Original) The method for data processing according to Claim 13, wherein the external information comprises historical shopping information associated with the user associated with the request.

15. (Previously Presented) The method for data processing according to Claim 6, wherein the alternate content comprises the status page and further including resubmitting the data request to the data center by a browser to update the status page.

16. (Original) The method for data processing according to Claim 15, wherein resubmitting the data request is performed automatically by the browser.

17. (Original) The method for data processing according to Claim 1, wherein assigning the priority to the request comprises determining whether the request is prioritizable, and wherein the priority is a first priority when the request is non-prioritizable and wherein the priority is a second priority when the request is prioritizable.

18. (Original) The method for data processing according to Claim 17, wherein the first priority is a default priority and wherein the second priority is determined as a function of the data requested by the data request.

19. (Original) The method for data processing according to Claim 1 further comprising determining the load on an origin server by comparing a load metric associated with the origin server to a predetermined threshold.

20. (Original) The method for data processing according to Claim 19, wherein the load metric comprises the number of requests being handled by the origin server.

21. (Original) The method for data processing according to Claim 19, wherein the load metric comprises the number of network connections being supported by the origin server.

22. (Original) The method for data processing according to Claim 19, wherein the load metric comprises the delay associated with retrieving a predetermined web page from the origin server.

23. (Original) The method for data processing according to Claim 1, wherein the request is a first request and wherein queuing the request comprises:

storing the first request in a queue associated with the data center, the queue having therein a plurality of second requests distinct from the first request, each of the second requests having a respective priority associated therewith;

sorting the queue as a function of the respective priority associated with the first request and each of the second requests; and

wherein retrieving the requested data comprises:

processing the highest priority request in the queue by the origin server.

24. (Previously Presented) The method for data processing according to Claim 1, wherein the data center comprises a plurality of data centers and wherein receiving the request comprises:

determining a network distance between the client computer and at least one of the data centers;

determining the closest data center to the client computer;

resolving a destination address associated with the request to the closest data center; and

routing the request to the closest data center.

25. (Previously Presented) A system for dynamic flow control comprising:

a cache server operable to receive a request for content and retrieve content from an origin server in response thereto, the request received from a client computer requesting the content; and

a flow control server having an associated queue and coupled to the cache server, the flow control server operable to:

determining a state associated with the request to send data to the client computer;

assign a priority to the request according to the state associated with the request and according to priority criteria associated with the state;

automatically adjusting the priority criteria;

dynamically update the priority of the request to send data to the client computer in response to the adjusted priority criteria;

store the prioritized request in the queue as a function of the priority associated with the request; and

regulate the retrieval of content from the origin server by the cache server.

26. (Original) The system for dynamic flow control according to Claim 25, wherein the cache server is further operable to request permission from the flow control server to retrieve content from the origin server.

27. (Original) The system for dynamic flow control according to Claim 25, wherein the flow control server is further operable to associate a priority with the request based on the content requested by the request and determine a processing load associated with the origin server.

28. (Original) The system for dynamic flow control according to Claim 25, wherein the flow control server is further operable to associate a priority with the request based on external information associated with the request.

29. (Original) The system for dynamic flow control according to Claim 28, wherein the external information comprises historical information associated with a user associated with the request.

30. (Previously Presented) A method for dynamic flow control comprising:

receiving a data request at a flow control server, the request received from a client computer requesting data;

determining a state associated with the request to send data to the client computer;

associating a priority with the data request according to the state associated with the request and according to priority criteria associated with the state;

automatically adjusting the priority criteria;

dynamically updating the priority of the request to send data to the client computer in response to the adjusted priority criteria;

storing the data request in a queue as a function of the priority associated with the data request; and

retrieving data requested by the data request from a protected resource.

31. (Original) The method for dynamic flow control according to Claim 30 further comprising determining a load at the protected resource, and wherein associating a priority with the data request comprises associating the priority with the data request when the load at the protected resource exceeds a predetermined threshold and wherein queuing the data request comprises queuing the data request when the load at the protected resource exceeds the predetermined threshold.

32. (Previously Presented) The method for dynamic flow control according to Claim 31 further comprising indicating status information to be returned to the client computer requesting data.

33. (Previously Presented) The method for dynamic flow control according to Claim 31 further comprising indicating alternate content to be returned to the client computer requesting data.

34. (Previously Presented) The method for dynamic flow control according to Claim 33 further comprising determining the alternate content as a function of the bandwidth associated with the client computer.

35. (Original) The method for dynamic flow control according to Claim 32, wherein the status information comprises a status web page and wherein indicating status information comprises selecting the status page based on priority criteria associated with the protected resource.

36. (Original) The method for dynamic flow control according to Claim 35 further comprising resubmitting the data request after a predetermined time interval to the flow control server.

37. (Original) The method for dynamic flow control according to Claim 36, wherein resubmitting the data request is performed automatically.

38. (Original) The method for dynamic flow control according to Claim 35 further comprising delaying communication of the status page indication for a predetermined time interval based on the priority criteria.

39. (Original) The method for dynamic flow control according to Claim 38, wherein delaying communication of the status page comprises delaying communication of the status page indication based on an expected delay associated with the protected resource.

40. (Original) The method for dynamic flow control according to Claim 31, wherein receiving the data request comprises receiving the data request from a flow controlled device.

41. (Original) The method for dynamic flow control according to Claim 31, wherein retrieving the data requested by the data request comprises:

removing at least one prioritized data request from the queue when the load at the protected resource is below the predetermined threshold;

communicating the prioritized data requests to the protected resource;

retrieving the requested data from the protected resource; and

communicating the requested data to a flow controlled device associated with the data request.

42. (Original) The method for dynamic flow control according to Claim 41, wherein removing at least one prioritized data request comprises removing the highest priority data request.

43. (Original) The method for dynamic flow control according to Claim 41, wherein associating the priority with the request comprises determining whether the request is prioritizable, and wherein the priority is a first priority when the request is non-prioritizable and wherein the priority is a second priority when the request is prioritizable.

44. (Original) The method for data processing according to Claim 43, wherein the first priority is a default priority and wherein the second priority is determined as a function of the request.

45. (Withdrawn) A method for content filtering comprising:

receiving a data request at a flow control server from a flow controlled device, the data request having associated requested data;

evaluating the requested data against criteria;

discarding the data request when the requested data is forbidden by the criteria;

determining alternate data based on the criteria and the requested data when the requested data is forbidden by the criteria; and

indicating the alternate data to the flow controlled device when the requested data is forbidden.

46. (Withdrawn) The method of content filtering according to Claim 45, wherein the criteria comprises the geographic origin of the data request.

47. (Withdrawn) The method of content filtering according to Claim 45, wherein the criteria comprises the content of the requested data.

48. (Withdrawn) The method of content filtering according to Claim 45, wherein the criteria comprises the geographic origin of the data request and the content of the requested data.

49. (Withdrawn) The method of content filtering according to Claim 45, wherein the alternate data comprises a content forbidden web page.

50. (Withdrawn) The method of content filtering according to Claim 45, wherein the alternate data comprises an allowable web page.

51. (Withdrawn) The method of content filtering according to Claim 45, wherein indicating the alternate data comprises returning the alternate data to the flow controlled device.

52. (Withdrawn) The method of content filtering according to Claim 45, wherein indicating the alternate data comprises returning a location of the alternate data to the flow controlled device.

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EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None

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CERTIFICATE OF SERVICE

None